

## Section 3-4: Equations with Two or More Operations

**By the end of this lesson, you should be able to answer:**

- How do you solve two-step equations and formulas?

**Where you might see this in the real world:**

- Physics, Mechanics, Sports, Modeling

Define the following terms:

1. Two-step equation

Two-step equations aren't that different than one-step equations. We still want to get the variable by itself. We are still going to use opposite operations. However, with a two-step equation, we usually have to get the term that has the variable by itself first. As you solve these equations, first identify the term with the variable. Choose what you need to do to get that term by itself, then apply two steps.

Example 1:  $3x - 7 = 14$

Step 1:

Step 2:

Example 2: Now practice a few of these equations yourself.

a.  $4x + 9 = 33$

b.  $8 - 2y = 26$

c.  $6t - (-5) = 41$

d.  $3 + \frac{4}{3}g = 9$

There will be times where you need to simplify the equation before solving for the variable. You will have to do this if your variable is in more than one term. Sometimes you can combine like terms on one side of an equation. Others you will have to distribute or move the terms to the other side of the equation.

Example 3: Solve the equation and check the solution.

a.  $-3(x - 5) = 5(x - \frac{3}{5})$

b.  $4p + 5p - 13 = 14$

Formulas can be worked with in the same manner. Often times it will make your mathematical life easier if you first solve a formula for a different variable.

Example 4: Solve the formula  $I = prt$  for  $t$ .

Example 5: Solve the formula for area of a triangle for  $b$ , then find the base for the following situations.

a. Height = 4 m, Area = 12 m<sup>2</sup>

b. Height = 15 in, Area = 18 in<sup>2</sup>

Problem Set:

"I just never let anything bother me, man. I know myself really well. Nobody's opinion of me can shake my opinion of myself." - Ruben Studdard